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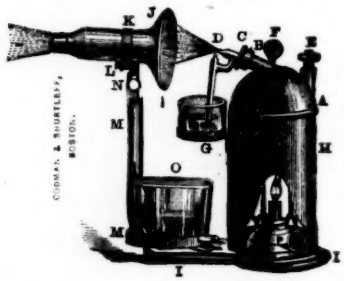

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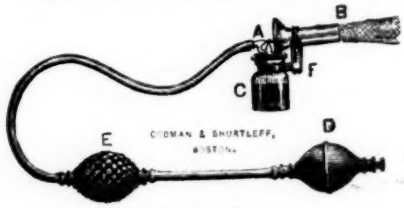

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Original Communications.

BIOPLASM.

AN ADDRESS, INTRODUCTORY TO THE REGULAR COURSE OF LECTURES IN CHICAGO MEDICAL COLLEGE, SESSION OF 1872—73.

BY D. T. NELSON, M. D.,
PROFESSOR OF PHYSIOLOGY AND HISTOLOGY.

Ladies, and Gentlemen of the Entering Class:—

The duty of welcoming you to these halls of learning, has been assigned to me by my colleagues. And it is a pleasant task, as we take you by the hand, to point you to some of the grand thoughts which must occupy your attention here.

But in passing, I must remind you that ours is a fast age, a fast nation, and a fast city. We go journeys in days our fathers travelled only in months. We acquire fortunes in years, which have required generations to amass in other countries.

We live in a city, which, less than a year ago, was almost without a business-house, and 100,000 of our citizens were without homes. To-day, we are told, there are more square feet of business-floors, and 50,000 more people sheltered in Chicago than before the Great Fire. And we have not yet celebrated its first anniversary. With such intense energy around you, you must be stimulated to unwonted activity. And if this shall be in the direction of faithful, thorough, and continued study of the topics of medical science as presented to you here, we feel confident that you will be satisfied with your progress, when the end of the session shall have been reached.

But if any one of you is so deceived as to suppose that medical science is easy—that all that will be needed in practice can be acquired in a few weeks, and with little labor—we would tell such an one, candidly, at the outset, you have mistaken your calling, you are in the wrong place, and we recommend you to seek some other field of labor. The physician must be a student always! His work is never done! But it was not my purpose to consider to any length the peculiarities of the life of a physician, or of the life of our age, or of our nation, or of our city, nor, indeed, of the human being, as distinguished from other living organisms. This shall be our study later in the term.

But we ask your attention now, simply to questions concerning living matter, or Bioplasm. Its origin. Its multiplication or growth. Its function. Questions which some of the best minds of the scientific world have been hard at work upon for years, and especially recently.

Living matter has of late received a variety of names, and before we proceed, we should fix upon the name which shall best embody the idea we entertain of it. We find, among recent writers, the terms, Germinal Matter, Protoplasm, Sarcode, and Bioplasm, and among the older writers, Aristotle speaks of animating principles. Heraclitus, of a universal fire. Hunter of a materia vitæ diffusa. Hoffman of a vital fluid, and Humboldt of a vital force.

All of these older writers evidently wished to convey to our minds the idea that living matter possessed a force, an energy—a something, peculiar to itself.

Of the recent terms, Protoplasm is undoubtedly the most familiar—made so by the writings of Prof. Huxley and his reviewers. We throw aside this term, more from the ill-repute and indefiniteness it has acquired in this spirited contest, than from any intrinsic defect in the term itself. As an example, let me give you a few of Prof .Huxley's words: "What community of faculty can there be between the brightly colored lichen, which so nearly resembles a mere mineral incrustation of the bare rock on which it grows, and the painter, to whom it is instinct with beauty, or the botanist, whom it feeds with knowledge? Again, think of the microscopic fungus—a mere infinitesimal ovoid particle—which finds space and duration enough to multiply into countless millions in the body of a living fly; and then of the wealth of foliage, the luxuriance of flower and fruit, which lies between this bald sketch

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of a plant, and the giant pine of California, towering to the dimensions of a cathedral spire, or the Indian fig, which covers acres with its profound shadow, and endures, while nations and empires come and go around its vast circumference! Or, turning to the other half of the world of life, picture to yourselves the great finner whale, hugest of beasts that live, or have lived, disporting his eighty or ninety feet of bone, muscle, and blubber, with easy roll, among waves in which the stoutest ship that ever left dock-yard would founder hopelessly; and contrast him with the invisible animalculæ — mere gelatinous specks, multitudes of which, could, in fact, dance upon the point of a needle, with the same ease as the angels of the schoolmen could, in imagination."

Now, Protoplasm is, according to Prof. Huxley, the "single, physical basis of life, underlying all these diversities of vital existence." "It is the clay of the potter: which, bake it and paint it as he will, remains clay, separated by artifice, and not by nature, from the commonest brick or sun-dried clod.' Thus it becomes clear — to him — "that all living powers are cognate; and that all living, forms are fundamentally of one character.' He does allow that there are two kinds of Protoplasm. The *vegetable*, which can manufacture fresh protoplasm from mineral compounds, and *animal*, which must procure it ready-made, or at most can only make it from pre-existing protoplasm.

The term, Sarcode, has never been but little used, and now has entirely given place to the term Protoplasm.

The term Germinal Matter, proposed by Beale, he himself has supplanted by the word Bioplasm, a shorter and more elegant term, and the one which, I think, will be adopted by the scientific world, as best expressing the idea — living matter.

Adopting this, then, as its scientific name, we inquire, first, as to its origin.

Origin of Bioplasm. — Of the origin of bioplasm, or living matter, the oldest account we have, and, I believe, it will be found to be the most reliable of any, and the one nearest in accord with the most advanced sciences, is the Mosaic account, which gives the origin of the vegetable kingdom, in these words. "And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit, after his kind, whose seed is in itself. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind."

And of the origin of the animal world, it says: And God said, "Let the earth bring forth the living creature after his kind, the cattle, and creeping thing, and beast of the earth, after his kind: and it was so.

"And God made the beast of the earth after his kind, and cattle after their kind, and everything that creepeth upon the earth after his kind."

And of the origin of man, or the human species, it says: "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul."

In a word, a Superior Intelligence bespeaks it into existence. Breathes into it life and immortality. How simple! How grand!

Let us next see what the investigations of science have accomplished in its search after the origin of living matter.

Among the oldest scientific writers, we find only what seems to us now, with our better means of analysis, rude attempts at defining the composition and origin of living matter; indeed, we may say, no analysis at all. In the Second century before Christ, Aristotle writes of the souls of living beings, and would teach us that there is something in living matter which does not belong to lifeless matter. But though the son of a physician, his writings pertain quite as much to to the metaphysical as the physical. From Galen, of the Second century after Christ, to Fallopius, of the Sixteenth century, the similar parts, or, as we should say, the simple parts, of the human body, are, the bones, cartilages, nerves, veins, arteries, and the like; in a word, what we now call the tissues. And all are pervaded by a peculiar force, the

vital; but of the nature of this force, or the origin of these tissues nothing is told us.

But early in the Seventeenth century, the investigations into the constitution of the tissues advanced; for just at the close of the Sixteenth century, Jansens, of Holland, had invented the compound microscope (in 1590).

With it, Borelius, of Pisa, finds the pus corpuscles, and describes them as the animalculæ causing disease, and says he has seen them delivering their eggs. Boerhaave sees the blood corpuscles. Malpighi, the circulation of the blood in the lung of the frog. Harvey had discovered the circulation of the blood in 1616, but never saw it; Malpighi saw it in 1661. Leeuwenhoek had described the blood corpuscles in man and the lower animals, and examined most of the tissues, and Malpighi had described quite accurately the structure of plants. This was the work accomplished the first century with the microscope — the Seventeenth.

About the middle of the next (1757), Haller published his Elements of Physiology, and in this we find the first attempt at a rational development of the tissues. According to Haller, all the tissues are composed of fiber and a solid concrete. But of the origin of these, he does not tell us; though he does tell us that the fiber "is invisible, and can be distinguished only by the mind's eye."

Following next are the observations of Wolf, who finds all the tissues composed of globules, but does not pretend to tell how these globules originated.

The fiber, and then the globules, as ultimate elements of the tissues, are the results of the labors of the Eigtheenth century.

The next step, early in the Nineteenth century, was the raising of the cell to the place of first importance — a position it has held ever since.

This was accomplished chiefly by the labors of two men — Schleiden in the vegetable kingdom, and Schwann in the animal. But of the origin of the cells we get no new ideas. The globules of Wolf form the fibers of Haller, and the cells of Schleiden and Schwann. But how originated the globules? We get no reply, only that they arise out of a clear fluid.

And this is the essence of the theory of Spontaneous Generation. The history of the discussions relative to this subject, spontaneous generation, would form an interesting topic for an hour's discourse but we can give it now but a passing glance, and if you would study it further, I would refer you to an interesting monograph, recently published by Prof. Dalton. The earliest traces of the doctrine we find in the writings of Aristotle, two centuries before Christ. According to him, all animals produce either living young (are viviparous) or eggs from which the young are hatched (oviparous), or they produce larvæ, from which the fully developed insects are derived. And beside these, but considered as exceptional cases, were quite a class of animals, said to have been produced spontaneously from the mud-slime, in which they are found, or, as Huxley would say, by the combination of the natural forces inherent in the mud.

Observe, it is only the obscure classes, and those difficult to investigate, which are supposed to be of spontaneous origin. The shell fish was supposed to be produced in this way — such as clams, oysters, barnacles, and the like. So were also the sea-nettles, and sponges. Moths were produced spontaneously by the woollen fabrics in which they were found; so, too, maggots by the putrefying meat.

It was a favorite idea with Aristotle, that the life of the higher animal, on its death, passed by division, as it were, into the maggots, and other organisms which seemed to succeed them. And this is an idea which we find often revived by the supporters of the theory of spontaneous generation, and always concerning some obscure species or genus, about which we know so little, that it is difficult to prove that the contrary is true. As science advanced, the genealogy of the oyster and clam, is cleared up; the parent of the maggot is found in the fly, and next, only the entozoa, such as the tape worm and the pork worm, are claimed by the advocates of this theory, and these, in turn, having been proved to have come from a pre-existing animal, all

naturalists were ready to subscribe to the statement of Cuvier in 1828.

Alluding to the statement of Pliny that some kinds of shell fish are produced in sandy deposits, by the spontaneous operation of nature, he says, "It is altogether untrue that animals are ever formed by spontaneous production. We are now perfectly acquainted with the eggs of these shell-fish and their whole mode of generation. The Aphya (the fish thought by the ancients to originate from the foam of the sea) is simply the young fry of larger fish; and so of all the rest." But no sooner is the question settled concerning these animals, than its advocates find a new and exceedingly fertile field among the Infusoria which were just being discovered and studied with the compound microscope.

Needham, of England, a priest and naturalist of note, believed that infusoria would be developed, in organic solutions, under circumstances which precluded the possibility of the pre-existence of germs; for example: He enclosed the juices of meat, hot from the fire, in glass vials, together with air, also previously heated, and shut out the atmosphere by "closely fitting corks." The infusoria and their germs are supposed to have been all destroyed, and no new ones can enter, as the bottles are "tightly corked." But infusoria do appear after a time, and he supposes they are produced by a kind of reorganization of the decaying organic materials.

But these opinions were vigorously combatted by Spallanzani, an Italian naturalist, who performed these same experiments with greater care. He hermetically sealed the glass flasks in which the organic infusions were placed, by melting their narrow necks. He next boiled the infusions for an hour, and then exposed them to such ordinary temperatures as were favorable to the development of infusoria.

The result of these experiments was that when the flasks were opened, not one of them showed the least appearance of animalculæ.

Schultze and Schwann, in Germany, still more carefully conducted these experiments, and with the same result.

And still later, Prof. Jeffries Wyman, of Harvard University, has shown the remarkable fact, that some of the infusorial germs are not destroyed by a temperature of 212° F., unless continued three or four hours; and recently Bastian has shown that they will resist a temperature of about 300° F., about the temperature at which sulphur melts. Now if many of these germs will withstand a temperature of from 212° to 300° F., as shown by the experiments of Wyman and Bastian, and if all the living beings from the higher infusoria to the highest animal — man — are *positively known* to be developed from pre-existing living beings, is it not more reasonable to suppose that the germs of a few of the lowest infusoria are capable of withstanding a temperature of 350° F., or even higher, rather than to assert that they are spontaneously produced.

May it not be possible that some of the germs were in a portion of the apparatus not so highly heated as the rest, and so they escaped?

Does not the term spontaneous generation simply mean, we do not know how they are produced? Has not this been proved to be its meaning in the past, and why may not such be the result now?

And is not the real object of the advocates of this theory to find a starting point for a method of development *without a Creator?* How unstable a foundation; how unworthy the name science! With every advance of knowledge, it must move on, to the confines of ignorance.

This brings us in our review to our own times. And what shall we say are the opinions of scientists now as to the origin of Bioplasm, or living matter? They may, I think, be conveniently classed as belonging to two schools—the materialistic and the vitalistic. The opinion of the materialists we will gather from Huxley; and we will give them as far as possible in his own words, to convey if we can thereby his exact meaning and no other.

Having analyzed *dead protoplasm*—I say dead protoplasm, for he could analyze no other — he must destroy life in order to a chemical analysis — having analyzed dead protoplasm and found it to consist of the simple chemical elements, carbon, hydrogen, oxy-

gen and nitrogen, and existing in such proportions as to form carbonic acid, water and ammonia, he then asserts that "these compounds, like the elementary bodies of which they are composed, are lifeless. But when they are brought together, under certain conditions, they give rise to the still more complex body, protoplasm, and this protoplasm exhibits the phenomena of life."

We call different kinds of matter carbon, oxygen, hydrogen, and nitrogen, and speak of the various powers and activities of these substances as the properties of the matter of which they are composed.

"Mingle oxygen and hydrogen in proper proportions, and pass the electric spark through them and water is the result. Oxygen and hydrogen at 32° F., and far below, are gases, and their particles tend to rush away from one another with great force. But water, at the same temperature, is a strong, though brittle solid, whose particles tend to cohere in definite geometrical shapes."

"We do not assume that something called 'aquosity' has entered this water and made these changes which we see."

"Is the case in any way different when carbonic acid, water and ammonia disappear, and in their place, *under the influence of pre-existing living protoplasm*, an equivalent weight of the matter of life makes its appearance?" Yes, Mr. Huxley, but what is this "influence of pre-existing living matter?" May it not be just possible that this developes the protoplasm which is afterwards found? He replies, very humbly, "this influence of pre-existing living matter is something quite unintelligible."

But Prof. Owen goes even further than Huxley. He asserts that the formation of living beings out of inanimate matter, by the conversion of physical and chemical into vital modes of force, is going on daily and hourly.

In a word, living matter differs from other matter, only in possessing a peculiar combination of physical forces; a combination which may at any time occur by accident, or be invented by human ingenuity; and the chemist is approaching this grand combination, say they; he has already made in his laboratory urea and allantoin, with lactic acid, butyric oxalic and other organic acids—and the next step will be living matter itself. If so, it will be a long stride, in my opinion.

Undoubtedly the simple chemical elements oxygen, hydrogen, nitrogen, and carbon are present in all living matter, and at times, other elements which are of great importance to it in the performance of its functions; but to expect, by the study of the laws which regulate the combinations of these elements, to learn the nature or the functions of living matter, is as absurd as to attempt to study the architecture of Chicago before the great fire by the chemical analysis of its ashes. You might indeed find most of the chemical elements which composed its business houses, but how much could you learn by such an analysis of the business energy, or the financial standing of the firms they sheltered.

As well might you attempt to learn the speed of a horse by getting a chemist to analyze his muscles. Understand me, I am not disparaging chemical analysis, but attempting to show the absurdity of deciding questions relating to living matter by it.

But what shall we say of the vitalists? They believe there is a peculiar force or principle in organic matter, by which organized beings are enabled to take up the materials around them, and interchange them with their own, accomplishing thereby certain functions.

Whether this principle or spiritual agency is alike in the animal and vegetable kingdoms, or alike in the different kinds of animals and plants, are questions we cannot yet answer.

This activity is, as a famous zoologist Agassiz, I think, has said, "an invisible immaterial, superintending principle."

Whether this principle is related to, or can be correlated with the physical forces, such as gravity, light, heat, electricity, etc., that is, can be transformed into these, is a question we are not yet able to answer satisfactorily, though we incline to the negative.

If correlative, why are not these forces

often seen to be transformed into the vital. It may be replied this is constantly occurring in the lowest orders of life, among the animalculæ and fungi. But why have the higher forms of living matter never appeared?

Again, if the vital force is correlated with heat, electricity, etc., when death occurs in part, or the whole of an organism, these forces should reappear with renewed power. But we know that the contrary is true—where there is increased vital activity, there is increased heat; and so too of the other forces we call physical, so far as they appear in the living organism at all. Witness the greatly increased heat of inflammation and the fevers. Instead, then, of the vital force being the resultant of the combined physical forces, it seems rather to liberate them and allow them to form new combinations or appear in new forms.

As to the origin of bioplasm, the vitalists reply briefly—from pre-existing bioplasm. The German school, with Virchow at their head, express it by saying every cell came from a pre-existing cell; and the English school, with Beale at its head, says every living particle came from a pre-existing living particle. But of the origin of the first cell or the first living particle science gives no satisfactory account, and revelation gives but an indistinct picture, for its object is not to teach science though it should not be at variance with truth in any department.

Bioplasm or living matter under the highest powers of the microscope at present in use, appears to consist of exceedingly small particles or globular masses, which are colorless, structureless and active.

The highest powers now used magnify an object 5000 diameters; so that if an object one foot in diameter could all be seen at once, it would appear to be a mile in length; a carpenter's two foot rule would appear to be an unwieldy measure of nearly two miles in length, which, as you know, would nearly reach from this building to the Court House square. And yet with an instrument of such a power as this, it is probable that only the larger masses of living matter can be seen and many are even too small to be seen at all.

Growth of Bioplasm.—Growth or development is one of the characteristics of bioplasm. Assimilation or the taking up of food or pabulum is a constant peculiarity of living matter, taking of the non-living and transforming it into the living, so that if there was no transformation of the bioplasm into tissues, there must be a constant increase of the living matter.

But *how* it grows or *how* the lifeless particles are transformed into the living, no microscopist has been able to see, and no chemist to determine by his analysis. This is the mystery of life.

Function of Bioplasm.—The function of bioplasm is to form tissues. Probably no mass of living matter, however small, is without its tissue envelope, which may be simply to protect, as in the epithelial cell, or besides this, may have a higher purpose, as in the muscle, to contract—the nerve to convey intelligence. Or the tissue at first formed may be transformed into still another substance—take as an example the bioplasm of the milk cell, whose tissue is transformed into water, sugar, casein, and the other ingredients of the milk. So, too, the tissue of the liver cell into the constituents of the bile; and so of the rest. The function of the bioplasm is to form all the tissues, and just here is a profound mystery.

Take for example one of the higher animals; the bioplasm of the adult has been all derived from the small mass in the germ. Each anatomical element of each and all of the tissues has its bioplasm, and each forms its own appropriate tissue with unerring certainty; and as yet we can determine no difference in the living matter from these different localities—nay, I might go further and with Huxley say we can detect no difference between the bioplasm of the animal and the vegetable; and how varied are the tissues formed. How unlike — the horny nail and the brain cell—the giant oak and the liver cell. How dissimilar the milk, the urine and the bile.

Remember I do not assert there is *no difference* in the bioplasm from these varied sources, but only that we are, as yet, unable to *detect* any, and that in each it is all derived

from the single mass in the germ. And it is just here that the departments of pathology and therapeutics touch our subject.

The multiplication of bioplasm in the tissues may be so rapid that only an imperfect soft tissue is formed, and we have pus; or, though too rapidly growing, a firmer tissue may be developed and we have cancer, tubercle and the like; or this rapid growth may be general and we call it fever. Or, instead of the tissue once formed doing its appropriate work, it is transformed into some other substance, as in fatty degeneration of muscle. And, in your materia medica, what drugs will restrain or prevent the development of bioplasm? Will alcohol; will acids; will quinine? Are these then useful in fevers?

If externally, a solution of carbolic acid or permang. potass. will prevent the growth of bioplasm, will not these prevent suppuration?

But I must not follow these thoughts longer. They will be your topics of study during the coming winter—during your college years—yes, and during your whole lives as physicians. And now, gentlemen of the Entering Class, I invite you especially to the department of physiology and histology, as dealing most directly with these grand themes of living matter and the tissues, though the other departments will all treat of these more or less directly, as we have seen. I invite you to all of these departments of study. I invite you—especially those of you who are older in medical studies—to the hospitals and dispensaries. We throw open wide our doors and welcome you to work—to hard work—and we promise you on our part a corps of faithful instructors.

Intoxication in France.—M. Bergeron recently presented a lengthy paper to the Academy of Medicine of Paris on the subject of the terrible increase of intoxication in France from the use of distilled liquors. A meeting of the Academy, for the purpose of discussing the paper, was held early in October, and efforts are being made to secure the passage of laws which shall, by the imposition of fines upon those found intoxicated in the street, and by other means, remedy the present condition of society in this regard.—*Med. Rec.*

Duration of Pregnancy.—It is well known that since the days of Hippocrates the normal duration of pregnancy in the human female has been taken on an average to comprise ten lunar months, or ten menstrual periods of twenty-eight days. In some single cases the accurate reckoning of the duration of pregnancy is made impossible by the impossibility or uncertainty of fixing the day of conception. Notwithstanding these difficulties and sources of error in the calculation of the lenghth of pregnancy, there are still some exact observations to show that conceptions exist from the known average period of pregnancy, apparently connected with the individual peculiarities of the mother. In the lower animals, at any rate, these anomalies are the more numerous, in proportion as their average duration of pregnancy. For the human female Cederschjold first made the observation that the period of pregnancy lasts ten menstrual epochs, and Schuster and Berthold spoke in the same way. The author of a paper, Dr. Lowenhardt. in the *Arch. f. Gynakologie* remarks that we must remember that the menstrual period in the same woman does not always exhibit a normal and constant type; but he believes that he has found an approximately accurate means of calculation by observing the length of the last menstrual period, so that the distance of the commencement of the menstrual period before the last one to the last is to be taken as the tenth part of the length of the pregnancy. In order to shut out some errors, he reckons the length of the pregnancy in cases where the last observed interval is 26 days, at 256 to 265 days; in cases where the interval was 27 days, he calculates the duration of pregnancy at from 266 to 275 days; when the interval was 28 days, he calculates on a 276 to 285 days' pregnancy; in an interval of 29 days he reckons a pregnancy of 286 to 295 days; and from a 30 days' interval he calculates the pregnancy at 296 to 305 days. Since the interval of menstruation in the majority of women is 28 days, pregnancy must be estimated as a rule between 276 and 288 days.—*The Doctor.*

Nocturnal Incontinence Treated by Chloral.—Dr. Girolamo Leonardi (*L'Ippocratico*, 10th July), has found chloral useful even in adults long affected with nocturnal incontinence of urine, in the dose of one gramme dissolved in sixty grammes of water at bed-time. The patient is not to drink much at supper. He mentions one case of rapid cure in a young scrofulous male, aged 24, and another in a boy, aged 7. The cure was without delay.—*Ibid.*

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EDITED BY

N. S. DAVIS, M. D., AND F. H. DAVIS, M. D.

Chicago, October 15th, 1872.

EDITORIAL.

PAPINVILLE, MISSOURI.

Prof. N. S. Davis, Chicago, Ill.

DEAR SIR: — I have thought often that I would write to you concerning a disease that has troubled me much for years; but I felt as if I would be imposing on your overworked time, and have postponed until now. The disease I wish to speak about, is commonly called Nursing Sore Mouth. I have met with about ten cases in six years, and within two years I have treated five cases. I have consulted all the authorities I could get hold of, and have been able to get little or no information from them; a great many of the works say nothing about it.

The disease, according to my experience, makes its appearance, in a majority of cases, about ten days after confinement — though it does come occasionally during the latter weeks of pregnancy. The symptoms are about as follows: The patient complains of loss of appetite, becomes pale, and nervous, and within a few days will complain of a rawness of the tongue, with smarting sensation when anything warm is taken into the mouth. On examination we find the tongue very red, as if it had been scalded, and in a few days the mucous membrane begins to peel off in strips or patches, and the tongue begins to look better. The disease appears now to settle down to a few ulcers on the back part and edges, with two or three elevations that look like warts. Matters continue about this way, so far as the tongue and mouth is concerned; the appetite continues to be poor; there is gradual emaciation. All these symptoms continue for a month or two. If not stopped, the œsophagus and upper portion of the stomach becomes involved, after which, in some cases, gradual emaciation continues until death closes the scene. I have seen two cases where there was every evidence of extensive ulceration of the stomach, accompanied with an anemic condition of the blood, that tonics had no control over, so long as the child nursed. From what I have seen of the disease, I am compelled to think that it is at first sympathetic with the secretions of the breast, for in every case where I have seen it tried, as soon as the child is taken from the breast, the mouth and tongue gets well, and remains so until a subsequent confinement, when it invariably returns.

I will now speak of treatment. I have tried almost everything that seemed to be suitable, for such a condition of the system, with little or no benefit. Iodide potass. and other altertives have no control over it. Iron and other tonics do but little good. Local applications frequently agravate the disease. A solution of tannic acid is the best local treatment I have found. Carbolic acid does more harm than good. The only thing that comes near being a cure, in my experience, is weaning the child.

Is there no remedy known to yourself for the above disease? if there is, you will confer a lasting benefit by letting it be known through the *Medical Examiner*, and perhaps save many lives. Yours, truly,

AUG. RHOADS, M. D.

NOTE. — The above letter was received many months since, and marked for editorial notice. But evidently it got covered by other papers, and escaped further attention until the present time. In reply to the inquiries of our correspondent, we would say, that we know of no specific cure for Nursing Sore Mouth. And yet it is more than fifteen years since a case has originated in the circle of our own practice, in which it became necessary to wean the child. Many years since, a careful study of the phenomena of the disease, led me to regard it as arising essentially from a deficiency of phosphatic salts in the blood. The woman, in furnishing from the blood the material necessary for the nutrition and growth of herself and child, does not assimilate these salts fast enough to supply the demand. The indication for treatment is chiefly to supply this deficiency; and no *tonics*, merely as such, which do not contain these salts as prominent constituents, will do any permanent good. If, as soon as the patient begins to feel the scalding and tender sensations in the edges of the tongue and mouth, she is required to take regularly a fluid drachm of the compound syrup of the hypophosphites at each meal-time, and at

bed-time, with plain, nutritious food, and a little fresh, out-of-door air, every day, it will generally arrest the progress of the disease effectually, and she will remain well so long as she continues the medicine from two to four times a day. But in many instances it will be found necessary to keep up the supply of medicine during the whole period of nursing.

In several instances under our care, the omission of the medicine for two weeks during any part of the time would result in a renewal of the symptoms of trouble in the mouth and stomach. But with the renewal of the medicine the symptoms would disappear.

There are several other prescriptions which will answer a similar purpose. One of the best, is the mixture of extract of malt, two parts, and compound syrup of hypophosphites, one part, given in doses of a small table-spoonful at at each meal time. If the disease is neglected, or treated with ordinary tonics, or stimulants, or both, until the mucous membrane of the mouth, fauces, stomach, etc., is already extensively ulcerated, and the blood of the patient extremely impoverished, no treatment may supercede the necessity for weaning the child.

Gleanings from Our Exchanges.

THE BRITISH MEDICAL ASSOCIATION.

The following cases from the address in Midwifery, delivered by Evory Kennedy, M.D.—a continuation of those given in our last—are taken from the excellent abstract of the proceedings of the late meeting of the Association, given in the September and October numbers of *The Doctor:*

The Whole Circle of the Os Uteri Thrown Off in Labor.—A patient in her third labor, which was somewhat violent, had slight hæmorrhage. The head was well engaged in the pelvis, and some fleshy mass was found to protrude from the vulva. The pains increasing, a complete circular ring, about three-eighths of an inch thick by an inch in breadth, escaped, which, on examination, proved to be the detached os uteri in its entirety. The labor proceeded rapidly. There was very little hæmorrhage; and the patient made a favorable recovery, the lochiel discharge continuing longer and being more offensive than usual. Of the after-history of this case, and whether she bore more children, I am ignorant.

Acephalous Fœtus; totally brainless; acutely sensitive.—A female child, otherwise fully formed and developed, was born acephalous—in fact, totally devoid of brain. It survived its birth one hour and a half, breathing and crying loudly; the expirations were rather convulsive in their character. Its voice was very strong. It was acutely sensitive to impressions made on the surface of the body, and moved its limbs. We could not satisfy ourselves whether it heard or saw. It cried so much on inserting food in its mouth, that it was impossible to ascertain whether it could perform the act of deglutition. In other cases of acephalous fœtuses, we usually found a rudimentary portion of the middle lobe of the brain; and they rarely survived beyond a few gasps, if so much. The malformation is occasionally combined with spina bifida and contortions of the limbs; but some, like this child, are fully developed—indeed, the shoulders were so much so as to create a difficulty in their extraction. The *post-mortem* examination, in which I was assisted by the late Dr. Todd, of King's College, presented no feature worth recording, beyond what I have mentioned.

Spina Bifida.—In June, 1872, I was consulted about a child four months old, reasonably well developed, healthy, and with every prospect of continued vitality and health, save the existence of a head somewhat large, but with tardy development of the parietal and frontal bones, leaving the large fontanelle unossified, congenital dislocation of the ankles forwards, and a spina bifida of the lumbar vertebræ. This measured two inches in diameter, with a projecting polished membranous covering, enclosing an elastic fluctuating sac. In fact, there was a total absence of the integumentary, ligamentous, and bony covering of the spinal cord, the thickened dura mater supplying their place. I exhibit a model of this case. The child, a girl, shows quite as much evidence of mind and powers of observation as four months' children generally do. My directions hitherto have been to take every precaution to prevent the injury or rupture of the cyst. A chambered shield of gutta percha, lined with padded silk, is being adapted to prevent the possibil-

ity of accidental injury; and I have it in contemplation to try a plastic operation when the age, promise of enduring life, and condition of the child justify it. It would be extremely gratifying to me to have the suggestions of my *confreres* with reference to the future dealing with this remarkable case; more especially of those who have met with similar cases in their practice. How long have they been known to survive, and how they were treated?

Vesico-vaginal Fistula cured by twisted Suture.—On August 12th, 1837, H. Byrne, æt. 25, was sent from the country suffering from vesico-vaginal fistula. The opening was longitudinal, about five lines long, with considerable loss of substance. It was about three inches from the urethral orifice. The bowels were well freed. She was placed on the abdomen on the edge of a table, with a bolster interposed. My four curved beak-tractors were introduced, and, her limbs being held fast by assistants, I pared the edges of the fistula with a scalpel, cutting on an ebony spatula; and, having introduced three short needles into the wounded edges, drew them together with a twisted suture. A perforated shot was now squeezed on the end of each needle, an elastic catheter introduced into the bladder, and the patient was placed lying on her abdomen, on bolsters stiched together longitudinally. She was retained in this position, and closely watched day and night, by a relay of nurses, who never left her. The urine flowed freely from the urethra into a bladder attached to the catheter. her bowels were washed out by lavement. Not a drop of urine escaped from the vagina. The sutures were cut out on the fifth day, and the needles removed, when the union was complete. She left the hospital in a fortnight perfectly well. I had the advantage of the assistance of my late colleague, the distinguished surgeon Mr. Abraham Collis, in this case; and I cannot easily forget the gratification he evinced when he made a final examination of the bladder before the patient left the hospital, nor the significant manner in which he answered my inquiry whether he could find any hole. "No, doctor; I can't find a hole, unless I make one;" and added, with a peculiarly expressive shrug of his shoulders, with which those who knew him were familiar, "I am sure you do n't wish me to do that."

Vesico-vaginal Fistula treated by Cautery and Pessary. — Mary Cathcart (November, 1837) suffered from a slough of the vesico-vaginal septum in her first labor in the country. The fistula was small, circular, about two inches and a half from the meatus, and rather to the right side. This was considerably diminished by one application of the actual cautery a month after her third delivery; but as this was followed by peritonitis, it was determined not to repeat any operation. A cast model of the vagina, made of dentist's wax, was taken. This was done by introducing the soft wax, with a tape for extraction imbedded in its center, through a speculum partially introduced. A caoutchouc mould was made from this, which fitted the vagina accurately, and was worn constantly as a pessary. The result of this simple contrivance, to use the words of my then clinical clerk, copied from this report, was, that "she experienced much comfort, being enabled by its use to retain her urine to a convenient length of time, and evacuate the contents of the bladder at pleasure, without withdrawing the instrument." I should, however, mention that I have since several times repeated this plan, using the cautery in preference to the ligature, or where this was objected to; and it has generally enabled the patient to retain her urine for some time. It has, however, not always been attended with the same amount of success. In fact, it is more adapted to very small fistulous apertures, or to those that have been reduced by the use of the cautery.

Total Occlusion of Vagina: Operation: Animation suspended for upwards of twenty-two Minutes by Chloroform.—Some years ago, Dr. Ringland and I were called upon to operate in a case of a lady with total occlusion of the vagina. The examination could only be made through the rectum. The anterior and posterior walls of the vagina were united almost throughout their whole length. There was a sense of fluctuation perceptible on pressing the finger high up into the bowel. A tumid fullness was perceptible over the pubes, to about the extent of a six months' pregnancy. The bladder and rectum were emptied; and the patient was placed on her back, on a high couch, with the limbs flexed and held by assistants, as in lithotomy. The patient was with some little difficulty brought under the influence of chloroform. I had commenced the operation, when she struggled so that I was obliged to desist, and assist in bringing her completely under its influence, before again commencing. A catheter was introduced into the bladder, and the dissection was proceeded with, cutting and separating the adherent tissues with the blade and handle of the scalpel alternately; now introducing the finger into the rectum, and again feeling through the anterior wall for

the catheter, to avoid approaching too closely to either cavity — a scarcely appreciable divergence in either direction being fraught with misery to our patient for life. From the difficulties and risk attending the operation, it was necessarily a tedious one; "rapidity" in such an operation being a convertible term for "destruction." At length, after cutting for three inches upwards, and dissecting a new vaginal canal by dividing throughout this extent a layer of condensed structure not more than the sixth of an inch in thickness, we had the gratification of coming to a small pouch at the upper part of the vagina, which communicated with the distended uterus, and from which poured a quantity of grumous retained menstrual fluid. Having thoroughly enlarged the opening at the upper part, so as to correspond with the dimensions of the canal throughout, I got up from the operation to receive a shock such as I never experienced before or since. Our attention was called by the chloroformist to our patient, who lay with her head over the edge of the table, her jaw fallen, and to all appearance dead. There was no respiration; no pulse at the wrist; no action of the heart. I took out my watch, in order to take care that attempts to restore animation should be continued for a sufficient time before desisting, but without a hope that they could be attended with success. Experience in resuscitation of infants had led me to expect little from forcible inflation of the lungs by inserting a tube into the trachea, but much from a continuous and persistent imitation of the act of respiration by regular pressing on the elastic ribs of the subject—producing, as nearly as possible, the systole and diastole of the lungs and chest-frame, as observed in nature. Without a moment's delay, I sprang upon the high table, so as to command the prostrate woman; and, kneeling across her, placed a spread hand over the lower ribs, and kept up an artificial respiratory action in the lungs of about twenty pressures in a minute. In the meantime, all the available means of resuscitation were most assiduously carried out by my friend Dr. Ringland and his assistants. Friction and sinapisms were applied to the arms, legs and surface. As speedily as buckets of warm water could be procured, her hands, feet, and limbs were immersed in it. These efforts were persisted in, whilst minute after minute was anxiously counted, with not the slighest evidence of restored vitality. At length, our souls absolutely sickened with disappointment, and, I may add, all hope having fled, we were, at the expiration of twenty-two minutes, repaid for our exertions by a convulsive gasp. Nearly a minute took place before a second occurred. Then they recurred at half-minute intervals; and eventually the natural breathing became established, and the artificial respiration was desisted from. Sickness now set in. She was unable to assist in the involuntary efforts to discharge the stomach. The food blocked up the œsophagus and posterior fauces; but, by drawing the head and neck over the edge of the table, and giving her the advantage of gravity whilst the finger was pressed into the œsophagus, the obstructing food and mucus were removed, and respiration was established. A second collapse ensued after a few minutes, consequent on the evacuation of the uterus; but after this she recovered without a check. A curious circumstance, in a psychological point of view, should not be omitted. When she recovered her sensibility and powers of perception and speech, within a few minutes after respiration was re-established, looking steadfastly at one of the physicians present, she asked slowly and with some effort, "Is that Jesus Christ?" Where was her soul during that period of suspended animation? It might be surmised, that this case would shake one's confidence in chloroform. With me, it had an entirely contrary effect, as it proved the power — perhaps I should say, the capability — of restoring vitality suspended by its use under circumstances apparently hopeless.

Obstinate Procidentia of Uterus Cured by Actual Cautery. — Mary Burke, æt. 60 a widow with six children, had obstinate procidentia of the uterus, and could not retain any form of pessary. She suffered much distress; her general health was deranged; she was dyspeptic, and had lumbar pains. She was confined to the horizontal position, with the lips well raised, for a fortnight. The ulcers healed. The uterus was placed *in situ*, and astringent injections were used. The actual cautery was then applied about an inch and a half from the vulva round the surface of the vagina for the extent of about half an inch. My clinical clerk, who was somewhat of the Gil Blas school, in criticising his master, adds that the old woman was so indignant at this operation, which, for obvious reasons it was deemed more considerate not to explain beforehand, that she left the hospital in a fit of indignation, because a hot iron had been applied to her inside, as she said, without saying, "With your leave, or by your leave." She eventually permitted the treatment to be followed up by the application of nitrate of silver; and the report is thus continued by my clinical critic. At the expiration of two months, she was

able to go about again. The uterus was *in situ:* and she had derived much benefit to her general health and condition, and a distressing pain, descending down the front of the thigh, from which she had constantly suffered, had disappeared. The cicatrix formed by the eschar prevented the descent of the os. He adds, however, this caustic comment on my operation: "She certainly got a regular touching up."

MYALGIA AND ITS TREATMENT.

BY J. B. MATTISON, M. D., OF CHESTER, N. J.

Myalgia, strictly speaking, is the term applied to those very common and painful affections, grouped under the head of muscular rheumatism, and known as lumbago, pleurodynia, and so forth, according to the muscle or muscles affected.

Doubtless, every practitioner is more or less familiar with these troubles, and though some of them may be comparatively trivial, as, for instance, the stiff neck produced by cold, and, being treated with domestic remedies, escape his professional attention, there are others, in which the actual suffering, and incapacity for physical labor are so marked, and so protracted, that it becomes a matter of prime importance to remedy this state of affairs as speedily and effectually as possible.

It is not the purpose of this article to speak of the pathology of this disease, nor of its diagnostic points as compared with neuralgia, both features of marked importance, and for a full consideration of which the reader is referred to Dr. Anstie's admirable treatise on "Neuralgia and its Counterfeits," the latest and best work on the subject, and with which every physician should thoroughly acquaint himself, if he be desirous of keeping fully abreast of the times in the management of that painful affection.

We desire more particularly, to call attention to a plan of treatment, which, in our hands, in *all* cases, has given more prompt and satisfactory results than any other with which we are acquainted, namely, the subcutaneous injection of morphine.

Anstie, in speaking of the treatment of this affection, remarks, that keeping the affected muscle or muscles in a state of full extension, the maintenance of a perpetual local vapor-bath by spongio-piline, and, if necessary, one or two Turkish-baths, are all that is required in a very large number of cases. When these measures fail, he recommends the use of scruple or half drahm doses of muriate of ammonia, and adds, that "in the first very acute stage of a severe case it may be advisable to inject morphia hypodermically."

Now, the point we desire to bring prominently forward is, that it is not necessary to wait for a *severe* case, but that in *all* cases where professional assistance is desired, the hypodermic employment of morphia, varying the dose according to the intensity of the suffering, and in the milder cases a very small quantity will suffice, affords more decided, and by far more speedy relief than any other mode whatever.

The result in the following cases will fully illustrate the value of this form of medication.

March 13, 1872, was called upon to visit R. P., farmer, æt. 45, whom I found confined to his bed from a severe attack of lumbago of four day's duration. Any attempt to assume an upright position gave rise to the most exquisite suffering, and even when the affected muscles were completely extended and fully at rest, there was an intense aching, entirely preventing sleep, and causing much distress.

At the cost of great pain we succeeded in getting him in a semi-prone position, and injected one-third of a grain morphine sulphas over the lumbar region. In seven minutes, *actual time*, patient was free from pain, and expressed himself as feeling perfectly comfortable. Visited him the next day, 12 M. Complete relief, with no unpleasant effect save a slight nausea, had continued for sixteen hours, allowing a night's refreshing slumber, and only returned, very much lessened; about an hour previous to my second visit. Injected one-quarter grain sulphate, and that completed the treatment, as the next day the patient left his bed, and the second day afterwards reported himself in the village three miles distant from his residence. He was most emphatic in his testimony as to the value of the remedy, and declared that after the first injection "he was never so happy in all his life."

H. M., æt 17, presented himself at the office, complaining of pain in the left side, much increased on full inspiration, and of several weeks' standing. An examination into the history of the case convinced us that it was myalgic, and an injection of gtt. v. solut. magend. was followed, in five minutes, by entire relief from pain, *which did not return.*

W. H., æt. 35, applied for the full relief of a pain of four months' duration, presenting the following peculiarity: When erect, either sitting or standing, no discomfort was felt,

but the moment he bent forward, or elevated his feet above the level of his body, he began to suffer pain in the epigastrium, which constantly increased in severity until it compelled him to resume an upright position. He presented the appearance of perfect health, and a careful examination failed to discover the slightest evidence of gastric derangement. Regarding the case as one of epigastric myalgia, we injected gtt. viij. sol. magend. in the affected muscle. Saw the patient some hours after, and he expressed himself very much relieved, only slight pain being felt in any position. Circumstances of a business nature beyond control prevented his following out the plan of treatment, and he passed from under our observation. We have no doubt that the injections, had they been continued, would have resulted in a perfect cure.

Was called to visit Mrs. T., æt., 29, mother of seven children, the youngest eleven months old. The following is her history. Two weeks subsequent to the birth of her last child, she was seized with a severe pain under her left breast, which has occurred at variable intervals ever since. Not a day has passed without more or less distress, so marked, at times, as to compel her for a while, to abandon domestic duties. Her general health seemed good and were it not for the local suffering she would consider herself a well woman. There was a sense of soreness in the affected region, and the pain seemed to be dependent, in a great measure, upon muscular action, movements involving the affected part always distinctly agravating it. Sinapisms and other remedies had been employed without benefit. Considering the case myalagic in its nature, we injected gtt. iv. sol. magend. deeply into the substance of the painful part. Called forty-eight hours aftarwards, and learned the injection gave marked and permanent relief, having felt no pain since its employment, an immunity from suffering she had not enjoyed for nearly a year. Made a second visit some time later, and found the freedom from suffering continued. Meanwhile. she had engaged in more than ordinarily severe labor without any pain whatever, and having no further occasion for professional services after the case was dismissed.

The foregoing are not culled cases. They are given in the order they occurred, and the results in all, are, we think, such as to verify the statement made as to the value of the remedy employed.

Some doubts may be expressed as to the correctness of diagnosis in the last mentioned case, from the fact that one injection sufficed for a cure. The absence of any other manifestation of hysteria, past or present, will exclude the so-called "hysterical breast," while the want of any neurotic tendency in the previous history, and the fact that the pain was always distinctly agravated by muscular movement, will, we think, set aside any suspicion as to its neuralgiac nature.

While claiming for the subcutaneous employment of morphia the decided preference over other forms of treatment, we by no means deny that cases may occur requiring additional measures. It is pre-eminently in those instances where the affection is strictly local that its curative virtues are so marked. When any evidence of anæmia exists, and the pain seems but part of a general malnutrition, tonic remedies, and especially the continued employment of cod-liver oil, will be quite essential to effect a radical cure.

One point, in particular, we desire should not be overlooked, namely, *deep* injections. Plunging the needle firmly into the substance of the affected muscle, gives us the benefit of *acupuncture*, which has been found exceedingly valuable in getting rid of obstinate myalgic pain.—*Phil. Med. Reporter.*

ALCOHOL AS A COOLING REMEDY.

In the papers on "therapeutic traditions" in course of publication in the *Lancet*, the writer has been treating of "cooling remedies." He thus speaks of alcohol in this respect:—

With regard to alcohol, the substantial agreement (*a*) of nine-tenths of the observers who have studied the subject may be considered, even in opposition to a single illustrious objector—Dr. Parkes—to prove that the influence of alcohol upon temperature except when this is subnormal, is uniformly in the direction of *lowering*, particularly when it is given in narcotic doses. [The present writer has reason to add, from his own researches on this subject, that moderate doses of alcohol, compare, on the whole, very closely, in their effects on the temperature of healthy persons, with that of ordinary food; that the latter not unfrequently appears to cause a fractional *fall of temperature;* that alcohol (in ordinary dose) does this a little more decidedly, but not constantly; that, on the other hand, alcohol in narcotic dose produces a very substantial lowering influence. Indeed, he is strongly inclined to believe that the following statement, paradoxical as it

(*a*) Cunibert Bouvier (Pharmakologische Studien uber Alkohol; Bonn, 1871) has marshalled this evidence with striking effect.

sounds at first hearing, is literally true; that the more swiftly oxidisable a food is, the less likely is it to give occasion to the direct development of free heat, and the more likely to produce a positive fall of the thermometer when given in excessive quantity in health. In this view alcohol, for healthy persons, would simply be regarded as the most oxidisable of hydro-carbonaceous foods, though unfortunately, it has other properties, of a destructive kind, when taken in continued excess.]

Such being the state of our knowledge with regard to the action of food and alcohol in health, we have now to consider both theory and observed fact as regards their influence on *morbid excess* of temperature. In pyrexia, as is well known, the incidence of the bodily chemical changes is greatly altered: the elimination of nitrogen proceeds as before, but is now derived in great part from the destruction of nitrogenised tissues instead of the destruction of nitrogenised food; and this kind of process results in the development of a far larger proportion of energy *in the condition of free heat* than is produced by the conversion of food in time of health. Under these circumstances there appears no theoretic reason why food, provided it be readily oxidisable, should not form an efficient protection to the tissues, and a consequent depressor of febrile heat; and in truth, such objections to its use as really exist are mainly accidental—*e. g.*, certain foods cannot practically be given because the fevered stomach refuses to do the work of primary digestion upon them. Two forms of food, however, are rarely embarassing to primary digestion in pyrexia, except where the stomach is itself inflamed—viz., milk and alcohol. The almost unlimited use of milk is possible in many forms of pyrexia; and milk, either alone or combined with starch (in the form of arrowroot, &c.), frequently affords a striking instance of a food which lowers morbid temperature. The present writer has frequently seen (as others doubtles have) a typhoid fever patient experience a remarkable reduction of temperature and simultaneous amelioration of general condition upon the administration of this kind of nourishment. The effects of alcohol in the same direction are even more remarkable (*a*), but they are not constant; some mysterious law determines differences which are at present ultimate facts, incapable of solution. When alcohol acts without narcotising it reduces morbid temperature; but whether it will narcotise or not, and if so in what dose, are points as to which we can never be certain without experimental trials; although a certain speed and a certain form of pulse-wave, together with the presence of delirium, will frequently direct us rightly. Much yet remains quite unknown as to the profounder relations of alcohol to the fevered organism and the causes which allow it to be tranquilly oxidised in large quantities by one fever patient, while much smaller doses will disorder the system of another. But the fact remains that for pyrexial patients, presenting a certain group of phenomena which are now fairly well known, alcohol produces the truest and the most direct reduction of temperature—with the one exception of that caused by the cold bath—of which we have any example in the whole round of known remedies.

We have thus dwelt on the susceptibility of alcohol to oxidation, because that phase of its action assimilates it to common food. Our readers are well aware, however, that this is not the only probable source of the heat-lowering power of alcohol. The supposed action upon small cellular bodies which Binz, more especially, has assigned to it, is one extremely probable source of this cooling power.—*The Doctor.*

(*a*) Dr. Ringer probably underrates the amount of the reduction that can be thus effected, at any rate in the most appropriate cases.

Three Cases of Epilepsy.—Dr. L. P. Yandell, Jr., reported to the College of Physicians and Surgeons, the following cases, the first of which possesses unusual interest as having resisted the action of the bromide of potassium alone, but was rapidly benefitted and finally relieved by the addition of the sulphate of atropia to the prescription.

Case 1. A girl, aged thirteen years, small, delicate, precocious, has had since early childhood, excrutiating headaches, attended by vomiting, double vision, and sometimes loss of consciousness and delirium, and always sending her to bed for a day or more. The seizures were sometimes excited by undue heat or cold, excesses in eating or exercise, malarial trouble or menstrual derangement. She had been treated by bromide of potassium in full doses for many months without relief. When patient came under Dr. Y's care he gave her from twenty to sixty grains of the bromide three times daily, and one-hundredth of a grain of the sulphate of atrophate of atropia night and morning. The attacks soon became less frequent and less severe, and in seven months she seemed rid of them altogether. She was directed, however, to continue the medicine for twelve months more. The patient has of late had several attacks of genuine hemicra-

nia, which were entirely rebellious to the bromide and atropia, but which promptly disappeared under quinine.

Case 2. A young farmer, whose father, a confirmed epileptic, died hemiplegic and insane, had many convulsions during infancy and early childhood. Just after reaching puberty he had, while working in the hot sun, his first epileptic seizure. Has had attacks for four years pretty regularly every month, sometimes oftener. A course of bromide of potassium and sulphate of atropia, with strict attention to all his habits of life, have now averted a paroxysm for upwards of a year. He takes the medicine still, though in diminished doses.

Case 3. A Swede, aged twenty-seven, an epileptic since early youth, having attacks almost every month, was usually warned of the approach of the seizures by a distinct aura beginning in one hand. He was not unfrequently able to avert the attack by clinching the fist of this side with all his force, or laying violent hold on some hard substance, as a table or chair. The same treatment pursued in the previous cases materially improved the patient, and gave decided promise of curing him, when he left the hospital, and has not since been heard from. Dr. Y. has come to regard epilepsy as curable in the large majority of cases by the bromide of potassium and sulphate of atropia. —*Med. Reporter.*

Mixed Vapors for Anæsthesia.—Dr. J. D. Davis (*Medical Record*), in commenting upon this subject, remarks that the mixture recommended by the Committee on Anæsthetics, of the American Medical Association, deserves to be more universally known and used, its advantages being—the small quantity required; the rapidity of its action; the shortness of the stage of excitement (it often being wanting entirely); the absence of distressing after effects; its comparative safety over chloroform; being compounded in definite proportions, it can be scientifically administered; the pungent, stifling odor of the ether and the burning sensation of the chloroform, are to a great extent overcome; the sedative effects of chloroform are modified by the exciting influence of ether, while to both is added the stimulant alcohol. The mixture is composed of alcohol, one part; chloroform, two parts; and ether, three parts. It is easily remembered by taking the initials in the order of the alphabet: A., C., E., the corresponding number of parts being 1, 2, 3,

External Use of Fuming Nitric Acid.—Professor Patruban (*Memorabilien*, June, 1872), says that this heroic caustic is indicated on account of its rapidity and drying-up of the tissues. It stops all effusion of blood, and leaves good scars. He uses it for warts and other protruberances of the skin, as condylomata, epulis, hæmorrhoids, and tumors of the nature of nævus.—*The Doctor.*

Book Reviews.

The Physiology of Man. Designed to represent the existing state of Physiological Science, as applied to the functions of the human body. By Austin Flint, Jr., M.D. etc. Part IV. *Nervous System.* New York: D. Appleton & Co., Publishers.

This long looked-for and anxiously expected volume of Prof. Flint's Physiology is at length completed. It forms a volume of 461 pages, uniform with the previous numbers of the series. The physiological anatomy and the functions of the nervous system are the topics considered in this fourth part; the special senses being reserved for a fifth and last volume of the series. The author states that he has from the first looked upon this division of the work as the most difficult and the most important of all, and feels that this volume will be regarded with more critical interest than any one of the series; and if he has succeeded, even in a measure, in giving in it a satisfactory representation of our present positive knowledge, he considers that no apology is necessary for the length of time occupied in its preparation. For two and a half years he has been almost unremittingly engaged in writing this volume, and has endeavored to overcome, rather than avoid the difficulties which have presented themselves in the investigation of important questions, which are as yet regarded by many as unsettled. "Adhering conscientiously to the positive method of study, the author has endeavored to present an account of the nervous system, which, though it will undoubtedly be extended by future investigation, is made up mainly of statements of facts that will probably not undergo serious modification as we advance in our knowledge of the subject."

The author states that the fifth or last vol-

ume, which is to be devoted to the special senses and generation, is so far advanced that it is hoped that the entire work will be finished within a year.

The publishers of this series, with a view to presenting a complete work on the physiology and pathology of the nervous system, are about to issue this present volume of Prof. Flint's in connection with the lately issued work on Nervous Diseases by Prof. Hammond.

On the Functional Diseases of the Renal, Urinary, and Reproductive Organs, with a general review of Urinary Pathology. By D. Campbell Black, M. D., L. R. C. S. Lindsay & Blakiston, Philadelphia.

This is a small volume of 286 pages, and includes a concise, pratical consideration of the following topics: The conditions that affect the secretion of urine, with special reference to suppression. Retention of urine; its varieties, causes and treatment. Irritable bladder; strangury. Pathology and treatment of nocturnal enuresis, and spermatic incontinence. Sterilty in the male. Male impotency. Anomalous urethral discharges.

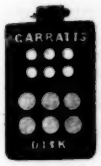
The Treatment of Syphilis, with Subcutaneous Sublimate Injections, by Dr. George Lewin, Berlin. Translated by Carl Prœgler, M.D., and E. H. Gale, M. D. Philadelphia: Lindsay & Blakiston.

The author states, in his preface, that nearly seven years have elapsed, since he introduced the subcutaneous sublimate injection into the syphilitic wards under his charge, in the Royal Charite Hospital, Berlin, and that during that time he has treated by this new method upwards of 2,000 patients. The special advantages claimed for it, are the quickness and precision of the results obtained, and the small per centage of relapses that occur. This method has the advantage, he says, over other anti-syphilitic cures, inasmuch as it requires no preparation of the system for, nor any after-cure in consequence of the medicine taken, because we can proceed at once *in medias res*, without losing any time whatever.

The instrument used in the operation is a special syringe, modified by Dr. Lewin, and manufactured by Geo. Tieman & Co., New York. In private practice, each patient must have his own needle, so as to prevent all possibility of infection. "The operation itself is the same as with any other subcutaneous injection. The cuticle should be raised, and the point of the syringe pushed into the middle of the cellular tissue, thus elevated. Be careful and not penerate so deeply as to injure the muscle; neither go too superficially, because the medicated fluid, remaining in the tense and unyielding stratum of cuticle, will not be absorbed, but give rise to inflammation and sloughing of the part; therefore, it is of vital importance that the medicated fluid be deposited in the meshes of the cellular tissue." The author uses three different strengths of solution, one of three grains to the ounce, one of four, and one of six grains to the ounce. "More concentrated solutions than these, cause often intense local inflammation and sensitiveness, and the formation of abscesses. Which of the solutions to use, in any particular case, must be determined by idiosyncrasy of the patient, sensitiveness, susceptibility, etc. Generally I prefer in practice, the middle strong solution, and with patients in Charite Hospital, I use it mostly." The partial dose for each injection, he states to be from $\frac{1}{10}$ to $\frac{3}{8}$ of a grain; the injections being repeated from one to three or four times daily, according to cir cumstances, severity of symptoms, etc.

The extended table of statistics given, as well as the detailed record of cases, seems to fully confirm the theoretical advantages claimed for this form of treatment, and we recommend the work to the attention of those interested in this department.

Money Receipts for September. — Drs. E. S. Cleveland, $6.00; G.W. Lawrence, $5.00; E. W. Edwards, $3.00; W. H. Searls, $3.00; J. M. Steele, $5.00; A. Gaslin, 6.00; L. Asir, $3.00; O. Peck, $6.00; N. Senn, $3.00; J. W. Fink, $3.00; Wm. Law, $3.00; J. H. Stevens, $5.00; Thos. Aiton, $2.00; Chas. Payne, $1.50; W. E. Quine, $5.00; Geo. Dale, $1.50; H. McKennon, $1.50; S. D. Mercer, $6.00; Martin Clark, $1.50.



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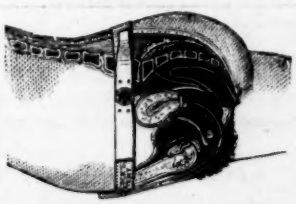

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